

INDIANA GENERAL



engineering data

ELECTRONICS DIVISION / MEMORY PRODUCTS • Keasbey, New Jersey • MEMORY CORES, PLANES and STACKS

STANDARD IGC PLUGGABLE, MOLDED PLANE With 20 And 50 Mil Ferramic® Cores

GENERAL

Indiana General's new pluggable, molded plane is available for coincident current memory applications, using either 20 mil cores on a 128 x 128 matrix, or 50 mil cores on a 64 x 64 matrix.

As smaller memory cores are developed to achieve faster cycle times, the need to string on smaller centers becomes apparent for two reasons: (1) propagation delay times are thus reduced because the windings are shorter, and (2) the shorter windings result in lower resistances of the winding, therefore lower voltages are needed to produce the necessary currents for driving the cores.

Printed circuit frames, unfortunately, are not desirable for use with cores strung on small centers for two reasons. (1) The attachment of wires and inter-frame jumpers necessitates a fixed pad area on the outside perimeter in order to maintain an adequate soldering area, which is in conflict with the requirement for closer and closer centers. (2) As narrower printed circuitry is used, the probability of lifting the circuitry from the board during soldering becomes greater.

IGC SOLUTION

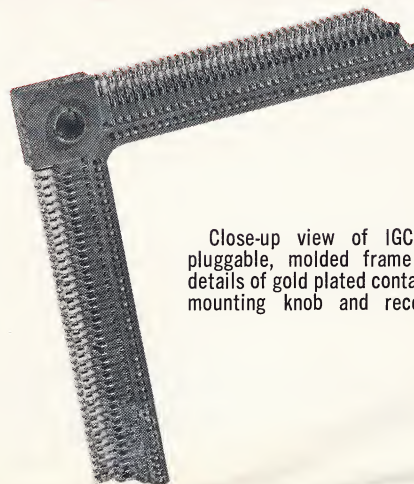
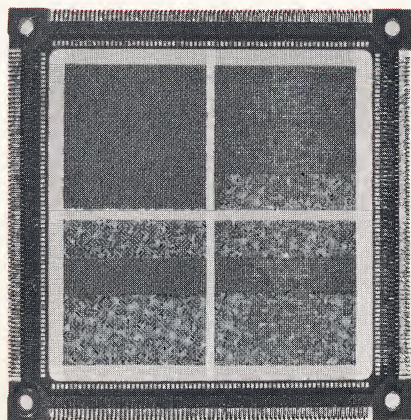
After considerable research, testing and evaluation, Indiana General has introduced its pluggable, molded frames for specific use with 20 mil (and soon 15 mil) cores.

Basically, IGC's new frame is a connector-type, utilizing male and female receptacles. Instant stacking is provided simply by plugging planes one on top of another. This feature makes the expansion of bit length a simple operation which can literally be accomplished in minutes.

The frame material is glass fiber reinforced diallyl phthalate resulting in a matrix which is shock, vibration, corrosion and moisture resistant in accordance with MIL M-M-14-F type SDGF.

MORE ADVANTAGES

Unless specifications demand, IGC's pluggable, molded planes do not require soldering between frames. However, if soldering



Close-up view of IGC's new pluggable, molded frame shows details of gold plated contacts and mounting knob and receptacle.

is required, it is accomplished by either the dip or wave method for a uniform joint.

The molded frame has provisions for double matting, as opposed to the one mat per plane limitation of other types. Other features include: mated pair voltage drop of not more than 15 MV @ 3 amps D.C.; gold plated contacts; and field replaceable male and female pins.

SPECIFYING PLANE REQUIREMENTS

All pluggable, molded planes are tested for compliance to customer specifications and to Indiana General minimum standards. Test measurements include core operating temperature range, switching time, output peaking time, and amplitudes for binary one and zero. These measurements are taken on input patterns that include all ones, all zeros, double checkerboard (worst case noise) and its complement.

The following list of requirements should be covered when specifying planes for ordering purposes or evaluation.

Current amplitude with tolerance.

Current rise time and duration with tolerance.

Minimum one.

Maximum zero.

Peak and switching time of one, with tolerance.

Temperature requirements.

Type of test: All ones, all zeros, or double checkerboard.

Frame configuration — memory word capacity; example:

32 x 32, 32 x 64, 64 x 64, etc.

Stack configuration — memory word capacity, and bits per word (word length) example: 64 x 64 x 8.

For further information, or design assistance, contact Indiana General Corporation, Keasbey, New Jersey (201) 826-5100; or call your local IGC sales office.

